

## **REMARKS**

### **Introduction**

This Reply addresses issues raised in the non-final Office Action dated August 31, 2010. Claims 1-27 are pending in this application. Claims 7-27 are withdrawn. Claim 4 is cancelled. Claims 1-3, 5 and 6 stand rejected.

With the present Amendment and Reply, claim 1 is amended as described below. Claim 2 is cancelled. Applicants respectfully request reconsideration in view of the claim amendments and remarks provided herein.

### **Objection to the Specification**

The Examiner objects to the abstract for not conveying the claimed and elected invention to make the Artisan aware that such is the invention. The Examiner notes that the abstract describes methods of utilizing the claimed transgenic cells/insects, but does not convey that the cells/insects are invented subject matter.

With the present Amendment and Reply, Applicants amend the abstract to convey the claimed and elected invention. Withdrawal of the objection is respectfully requested.

### **Objection to Claims 2, 3, 5, and 6**

The Examiner objects to claims 2, 3, 5, and 6 based on the use of the article "A" instead of "The". While Applicants note that the article "A" is acceptable for dependent claims under both MPEP and CFR guidance, Applicants nevertheless amend claims 3, 5, and 6 as suggested by the Examiner. Claim 2 is cancelled. Withdrawal of the objection is respectfully requested.

### **Rejection of Claim 2 under 35 U.S.C. §112, Second Paragraph**

The Examiner rejects claim 2 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Examiner contends the scope of claim 2 is unclear as claim 2 recites that the homologue is *Drosophila* but claim 1 refers to the homologue of *dhr96*.

With the present Amendment and Reply, Applicants amend claim 1 to define the term "homologue." Support for this amendment is found on page 3, lines 15 to 27 of the application as filed (WO2005/083442). Specifically, claim 1 is currently amended to recite that the homologue encodes a protein that exhibits at least 95% identity with that encoded by the *D. melanogaster dhr96* gene. Thus, claim 1 is now directed to subject matter which is only very closely related to

that which is specifically disclosed (the *dhr96* gene). Claim 2 is cancelled. Withdrawal of the rejection of claim 2 is respectfully requested.

Rejection of Claims 1, 3, 5, and 6 under 35 U.S.C. §102(b)

Claims 1, 3, 5, and 6 stand rejected under 35 U.S.C. §102(b) as being anticipated by Lam et al. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

As currently amended, claim 1 recites that the homologue encodes a protein that exhibits at least 95% identity with that encoded by the *D. melanogaster dhr96* gene. Lam et al fail to disclose, teach, or even suggest this aspect. Accordingly, Lam et al. do not teach each and every element of claim 1 and, therefore, cannot anticipate claim 1. Withdrawal of the rejection is respectfully requested.

Rejection of Claims 1, 3, 5, and 6 under 35 U.S.C. §103(a)

Claims 1, 3, 5, and 6 stand rejected under 35 U.S.C. §103(a) as be unpatentable over Lam et al., in view of Fish et al and Kalidas et al. The Examiner contends that it would have been obvious for one of ordinary skill in the art to substitute a generic gene or cDNA in the expression constructs of the RNAi interference of Lam et al. or Kalidas et al. with the *dhr96* cDNA and express the *dhr96*iRNA in *D. melanogaster* and reduce levels of expression relative to the wild type. Applicants respectfully traverse this rejection for the following reasons.

Lam et al. disclose an RNAi method of reducing the expression of *EcR*, a gene 52% homologous to *dhr96*, and the effects this has on the metamorphosis of a *Drosophila* species. Lam et al. fail to teach or suggest *dhr96*, its role in xenobiotic detoxification, the ramifications of this for insecticide screening, nor the application of this method to *Drosophila melanogaster*.

Fisk et al. and Kalidas et al. fail to cure the deficiencies of Lam et al. Fisk et al. describe the isolation, cloning and limited characterization of *Drosophila melanogaster dhr96*. Fisk et al. fail to teach or suggest RNAi gene suppression methods, the roles of *dhr96*, and its possible utility in insecticide screening. Kalidas et al. disclose RNAi-mediated gene suppression in *Drosophila melanogaster* via cDNA fusions. Kalidas et al. similarly describe methods of knocking out nuclear receptors in *Drosophila*, including using RNAi vectors. Neither Fisk et al. and Kalidas et al., however, provide any guidance with respect to *dhr96*, its roles, and its possible utility in insecticide screening.

Upon consideration of the combination of cited references, the skilled artisan would be taught that the genes of *Drosophila melanogaster* could be suppressed using RNAi, and that such suppression could be achieved via transformation with a suitable vector. The skilled artisan would also be taught of the *dhr96* sequence, how to manipulate the *dhr96* sequence, and some of its rudimentary properties which are of limited relevance to the present invention. To conclude the instant invention is obvious, however, would require the importation of impermissible hindsight and reconstruction of the prior art with a purpose in mind that is neither taught nor suggested.

While the skilled artisan could have substituted a *dhr96* cDNA as an expression construct to mediate the RNAi method described in Lam et al., the skilled artisan would not have been motivated to do so, absent the motivation which is now provided in the present application. That is, the provision of an insect or insect cell suitable for screening potential insecticidal agents using genes encoding proteins that regulate xenobiotic detoxification. The cited references disclose the involvement of *dhr96* only in *Drosophila* metamorphosis, and, accordingly, only when using an *ex post facto* analysis, motivated by the teaching of the present invention, can one purposefully select the essential elements of the present invention from amongst the citations. The person skilled in the art would be provided with no motivation to perform knock-out transgenesis of specifically *dhr96* from amongst the vast number of putative *Drosophila* genes available for investigation. Thus, if no suggestion is provided to carry out the inventive method detailed in the present application, there exists no motivation to produce this obligatory component. Withdrawal of the rejection is respectfully requested.

#### Rejection of Claims 1-3, 5, and 6 under 35 U.S.C. §103(a)

Claims 1-3, 5, and 6 stand rejected under 35 U.S.C. §103(a) as be unpatentable over Capecchi et al., Fisk et al. and Kalidas et al. The Examiner contends it was standard in the art to perform knock-out transgenesis of genes in cells and animals, including *Drosophila melanogaster*, to find the function of the gene. Applicants respectfully traverse.

While Capecchi et al. disclose knockout technology as applied to mice, Capecchi et al. fail to teach, suggest, or appreciate any correlation between the disclosed technology and the instantly claimed transgenic insect or transgenic insect cell. As admitted by the Examiner, Capecchi et al. fail to teach or suggest *Drosophila melanogaster*, much less a transgenic insect or transgenic insect cell wherein the homologue encodes a protein that exhibits at least 95% identity with that encoded by the *D. melanogaster dhr96* gene.

Lam et al. and Fisk et al. fail to cure the deficiencies of Capecchi et al. As noted above, Lam et al. fail to teach or suggest *dhr96*, its role in xenobiotic detoxification, the ramifications of this

for insecticide screening, nor the application of this method to *Drosophila melanogaster*. Fisk et al. fail to teach or suggest RNAi gene suppression methods, the roles of *dhr96*, and its possible utility in insecticide screening. As a result, the person skilled in the art would be provided with no motivation to perform knock-out transgenesis of specifically *dhr96* from amongst the vast number of putative *Drosophila* genes available for investigation. Furthermore, to conclude the instant invention is obvious, however, would require the importation of impermissible hindsight and reconstruction of the prior art with a purpose in mind that is neither taught nor suggested by the cited references. Withdrawal of the rejection is respectfully requested.

## **CONCLUSION**

The pending claims are believed to be allowable. Favorable consideration is earnestly solicited in the form of a Notice of Allowance. Applicants invite the Examiner to telephone the undersigned attorney of record if the Examiner feels that the call will be beneficial to advance prosecution of the application.

Respectfully submitted,

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/Mark D. Jenkins/

Mark D. Jenkins

Reg. No. 59,566

Attorney for Applicants

Womble Carlyle Sandridge & Rice, PLLC

Post Office Box 7037

Atlanta, Georgia 30357-0037

Telephone: (919) 484-2317

Facsimile: (919) 484-2096

Customer No.: 86344